AMENDMENTS TO THE CLAIMS

1-14   (Cancelled)

15.   (Currently Amended) A multi-service monitoring system comprising:

computer server systems having a cluster of application servers communicatively
coupled on a computer network to serve applications over the computer
network to a plurality of computer client systems, each of the application
servers comprising ~~a plurality of~~ server nodes, wherein each computer
server system including an application server having:

an administration service to generate ~~a plurality of~~ runtime
management beans ("MBeans")~~, on each of the server nodes and to~~
~~associate each of the runtime MBeans with specified~~ each runtime MBean
associated with a server node and one or more resources associated with
the server node, each ~~of the~~ runtime ~~MBeans~~ MBean collecting ~~and~~
~~reporting~~ monitoring data for its one or more associated ~~resource of~~
resources ~~via an MBean server~~ and reporting the monitoring data to a
corresponding monitor MBean; and

a monitor service in communication with the administration
service, the monitor service to generate the corresponding monitor
MBeans, each monitor MBean corresponding to a server node and its
associated runtime MBean, and ~~corresponding to selected runtime~~
~~MBeans, wherein each of the monitor MBeans corresponds to at least one~~
~~of the runtime MBeans, wherein each of the~~ each monitor MBean having
a resource identifier to identify its corresponding runtime MBean and ~~an~~
its one or more associated ~~resource~~resources~~resource being monitored by the~~

runtime MBean, the monitor MBeans arranged in a hierarchical tree structure, each of the monitor MBeans to receive the monitoring data from its corresponding runtime MBean.

16. (Currently Amended) The system as in claim 15 <u>wherein each computer server system including an application server</u> further comprising <u>having</u>:

a notification service to generate notifications in response to certain <u>occurrence of one or more</u> specified events associated with certain resources of certain <u>relating to one or more runtime MBeans or one or more monitor</u> MBeans, the notification service distributing <u>providing</u> the notifications across all, or a subset of, the server nodes of the cluster<u>to each application server in the cluster of application servers</u>.

17. (Cancelled)

18. (Currently Amended) The system as in claim 15 17 wherein the administration adapter service <u>each computer server system including an application server</u> further comprises <u>having</u>:

a swing-based <u>graphical user interface ("GUI") coupled to the convenience interface and to hierarchically display the monitoring data associated with resources associated with the server nodes based on a hierarchical arrangement of the server nodes in the a hierarchical tree structure, the swing-based GUI to represent the management functionality of the monitoring architecture to a network administrator or end user.

19. (Cancelled)

20. (Currently Amended) The system as in claim 15 wherein the administration service generates <u>runtime MBeans include</u> standard runtime MBeans and specific

runtime MBeans, the standard runtime MBeans providing one or more predefined standard functions for their associated resources, and the specific MBeans providing one or more resource-specific functions for their associated resources.

21. (Currently Amended) The system as in claim 20 wherein one of the standard functions comprises starting and stopping of ~~the~~ a resource.

Claims 22-24 (Cancelled)

25. (Currently Amended) The system as in claim 15 wherein one of the specified events comprises ~~a value associated with~~ a resource reaching a first threshold value indicating the resource is available.

26. (Currently Amended) The system as in claim 25 wherein one of the specified events comprises ~~the value associated with~~ the resource reaching a second threshold value~~, the second threshold value~~ representing a critical resource value indicating the resource is not available.

Claims 27-29 (Cancelled)

30. (Currently Amended) A method comprising:

communicatively coupling a cluster of application servers on a network to serve applications over the network to a plurality of clients, each of the application servers comprising ~~a plurality of~~ server nodes;

generating ~~a plurality of~~ runtime management beans ("MBeans"), each runtime MBean associated with a ~~on each of the server nodes and to associate each of the runtime MBeans with specified~~ server node and one or more resources associated with the server node, each ~~of the~~ runtime ~~MBeans~~ MBean collecting ~~and reporting~~ monitoring data for its one or more associated ~~resource of~~ resources and reporting the monitoring data to a

corresponding monitor MBean ~~via an MBean server~~; and

generating monitor MBeans, each monitor MBean corresponding to a server node and its associated runtime MBean, ~~corresponding to selected runtime MBeans, wherein each of the monitor MBeans corresponds to at least one of the runtime MBeans, wherein each of the~~ and each monitor MBean having a resource identifier to identify its corresponding runtime MBean and ~~an~~ its one or more associated resources~~resource being monitored by the runtime MBean, the monitor MBeans arranged in a hierarchical tree structure, each of the monitor MBeans to receive the monitoring data from its corresponding runtime MBean~~.

31. (Currently Amended) The method as in claim 30 further comprising:

generating notifications in response to ~~certain~~ occurrence of one or more specified events relating to one or more runtime MBeans or one or more monitor ~~associated with certain resources of certain~~ MBeans, the notification service ~~distributing~~ providing the notifications ~~across all, or a subset of, the server nodes of the cluster~~ to each application server of the cluster of application servers.

32. (Cancelled)

33. (Currently Amended) The method as in claim 30 ~~32 wherein the administration adapter service further comprises:~~ further comprising:

hierarchically displaying, via a graphical user interface, the monitoring data associated with resources associated with the server nodes based on a hierarchical arrangement of the server nodes in a ~~swing-based graphical user interface("GUI") coupled to the convenience interface and the~~ a

hierarchical tree structure, ~~the swing-based GUI to represent the management functionality of the monitoring architecture to a network administrator or end user~~.

34.   (Cancelled)

35.   (Currently Amended) The method as in claim 30 ~~further comprising generating~~ wherein the runtime MBeans include standard runtime MBeans and specific runtime MBeans, the standard runtime MBeans providing one or more predefined standard functions for their associated resources, and the specific MBeans providing one or more resource-specific functions for their associated resources.

36.   (Currently Amended) A machine-readable storage medium comprising instructions which, when executed, cause a machine to:

communicatively couple a cluster of application servers on a network to serve applications over the network to a plurality of clients, each of the application servers comprising ~~a plurality of~~ server nodes;

generate ~~a plurality of~~ runtime management beans ("MBeans"), each runtime MBean associated with a ~~on each of the server nodes and to associate each of the runtime MBeans with specified~~ server node and one or more resources associated with the server node, each ~~of the~~ runtime ~~MBeans~~ MBean collecting ~~and reporting~~ monitoring data for its one or more associated ~~resource of~~ resources and reporting the monitoring data to a corresponding monitor MBean~~via an MBean server~~; and

generate monitor MBeans, each monitor MBean corresponding to a server node and its associated runtime MBean, ~~corresponding to selected runtime MBeans, wherein each of the monitor MBeans corresponds to at least one~~

~~of the runtime MBeans, wherein each of the~~ <u>and each</u> monitor MBean

having a resource identifier to identify its corresponding runtime MBean

and ~~an~~ <u>its</u> one or more associated ~~resource~~ <u>resources</u>~~being monitored by~~

~~the runtime MBean, the monitor MBeans arranged in a hierarchical tree~~

~~structure, each of the monitor MBeans to receive the monitoring data from~~

~~its corresponding runtime MBean~~.

37.   (Currently Amended) The machine-readable medium of claim 36 wherein the

instructions which, when executed, further cause the machine to:

generate notifications in response to ~~certain~~ <u>occurrence of one or more</u> specified

events ~~associated with certain resources of certain~~ <u>relating to one or more</u>

<u>runtime MBeans or one or more monitor</u> MBeans, the notification service

~~distributing~~ <u>providing</u> the notifications ~~across all, or a subset of, the server~~

~~nodes of the cluster~~<u>to each application server of the cluster of application</u>

<u>servers</u>.

38.   (Cancelled)

39.   (Currently Amended) The machine-readable medium of claim 38 wherein the

~~administrator adapter service comprises~~ <u>instructions which, when executed,</u>

<u>further cause the machine to</u>:

<u>hierarchically display, via a graphical user interface, the monitoring data</u>

<u>associated with resources associated with the server nodes based on a</u>

<u>hierarchical arrangement of the server nodes in a</u> ~~swing-based graphical~~

~~user interface ("GUI") coupled to the convenience interface and the~~ <u>a</u>

hierarchical tree structure~~, the swing-based GUI to represent the~~

~~management functionality of the monitoring architecture to a network~~

~~administrator or end user~~.

40.   (Cancelled)

41.   (Currently Amended) The machine-readable medium of claim 36 wherein the ~~instructions which, when executed, further cause the machine to generate~~ runtime MBeans include standard runtime MBeans and specific runtime MBeans, the standard runtime MBeans providing one or more predefined standard functions for their associated resources, and the specific MBeans providing one or more resource-specific functions for their associated resources.